

REMARKS

Claims 4-8, 10, 11, 13-26, 28 and 30-36 are pending in the present application.

In this response claim 4 is amended to better describe the subject matter of applicants' invention. Claims 20 to 25 are amended to replace the term "B₁" with the term "B₅". In applicants' previous response in which the term "B₅" was inadvertently replaced with the term "B₁". Support for this amendment is found at page 7, lines 6 to 7 of the specification. It is respectfully requested that these amendments be entered.

The previous objections to claims 26 and 27 and the rejection of the claims under 35 USC §§ 102(b) and 103(a) have been withdrawn.

Rejection Under 35 USC § 112, Second Paragraph.

Claims 4-8, 10-11, 13-26, 28 and 30-36 are rejected under 35 USC § 112, second paragraph. It is asserted that the claims are indefinite in reciting the term "multi-effect triazole." Applicants respectfully traverse the rejection and ask that it be withdrawn.

It is noted that the remaining rejections of the pending claims under section 112, second paragraph from the previous office action have been withdrawn.

With this response applicants provide the declaration of Jiao Gai Li, one of the inventors of the subject matter of the present application. In his declaration Mr. Jiao states that it is "well known to those of skill in the art of plant tissue culture that the term "multi-effect triazole" or "MET" is the common name for a plant growth regulator having the common name PACLOBUTRAZOL; IUPAC name (2RS,3RS)-1-(4-chlorophenyl)-4,4-dimethyl-2-(1*H*-1,2,4-triazol-1-yl) pentan-3-ol; CAS: rel-(α *R*, β *R*)- β -[(4-chlorophenyl)methyl]- α -(1,1-dimethylethyl)-1-*H*-1,2,4-triazole-1-ethanol." Because the term "multi-effect triazole" has a definite meaning to those of skill in the relevant art, its

use in the claims of the present application cannot make those claims indefinite. In view of the declaration, Applicants respectfully ask that the rejection of claims 4-8, 10-11, 13-26, 28 and 30-36, under section 112, second paragraph, asserting that the use of the term "multi-effect triazole" makes the claims indefinite, be withdrawn.

Rejection Under 35 USC § 112, First Paragraph

Claims 4-8, 10-11, 13-26, 28 and 30-36 are rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement. It is asserted that the claims contain subject matter that is not described in the specification in such a way as to enable one skilled in the art to make and/or use the claimed invention. Applicants respectfully traverse this rejection and ask that it be withdrawn.

As a first matter, Applicants respectfully ask that the finality of the outstanding office action be withdrawn in view of the examiner's expanded arguments made therein, particularly in view of the new assertions regarding the transformation of cotton being highly dependent on particular varieties or strains of *Agrobacterium* and on the unsupported assertion that "the claims are broadly drawn to encompass all cotton plants, all culture media including any and all compositions, all *Agrobacteria* strains, all selectable agents and selective markers." (Office Action at pages 4-5.) These expanded assertions require an additional response.

Claim 31 of the present application is directed to "a method for producing a transgenic cotton plant comprising: (a) preparing explants from fibrous roots of cotton seedlings cultured in medium comprising about 0.05 mg/l to 0.2 mg/l of multi-effect triazole; (b) culturing said root explants in medium comprising a plant hormone selected from 2, 4, dichlorophenoxyacetic acid and α naphthalene acetic acid to induce callus formation; (c) transforming said callus with *Agrobacterium tumefaciens* comprising a

DNA encoding a chimeric gene of interest to effect the stable transfer of said chimeric gene to the genome of cells comprising the callus tissue; (d) inducing somatic embryos from said transformed callus; and (e) regenerating whole transgenic cotton plants having said gene of interest from said somatic embryos." Thus, applicants claim a method that uses a specific explant from roots of cotton seedlings and culture media for specific steps of the method which have specific components, including a medium comprising multi-effect triazole to prepare the fibrous root explants and a culture medium having specific plant hormones for inducing callus. Moreover, the specification of the present application contains actual working examples of the claimed method.

Agrobacterium tumefaciens is the most commonly studied species of *Agrobacterium*, a genus of bacteria that causes tumors in plants. The bacterium is an important tool used by those of skill in the art of plant molecular biology for transferring genes to plants for plant improvement. As stated in Hansen et al. article cited by the examiner in the first office action in the paragraph bridging pages 227-228, *Agrobacterium*-mediated transformation meets the criteria needed for successful transformation of plants. (Hansen et al., "Recent advances in the transformation of plants," *Trends in Plant Science* (1999) 4:226-231.) The article contains no statements, which suggest that transformation of cotton explants using *Agrobacterium tumefaciens* requires undue experimentation. There simply is no evidence that transformation of cotton is highly dependent on a particular variety or strain of *Agrobacterium* as is asserted in the outstanding office.

The method of claim 31 provides novel culture conditions for obtaining transformed cotton from fibrous roots of cotton seedlings. The general characterization of plant transformation at page 230 of the Hansen et al. article as "an art" does not apply to the transformation of the explants of roots of cotton seedlings of the present

application, nor does it provide evidence that practice of the method of the present application requires undue experimentation. First, the explants are from cotton, a species that has been manipulated in culture. Second, the claimed inventions of the present application provide detailed instructions for transforming the cotton tissues that are the subject matter of the claims. There is simply no evidence to support a conclusion that practice of the claimed method for transforming explants roots of cotton seedlings as disclosed in the present application, using terms which correspond in scope to those describing the subject matter of the present claims, requires undue experimentation. See *in re Marzocchi*, 439 F.2d 220 (CCPA 1971)(stating that "as a matter of Patent Office practice . . . a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support." Emphasis in the original.)

Finally, there is no evidence that the claims of the present application do not enable scoreable markers and selectable markers. The only cited evidence of record, the Hansen et al. article, provides a general discussion of the use of such markers. It provides no evidence that one of ordinary skill in plant molecular would be required to carryout undue experimentation to practice the claimed invention. Again, the examples of the application demonstrate the use of luciferase gene, which is one of the scorable markers mentioned in the article.


A determination of lack of enablement under section 112, first paragraph, is based on the evidence as a whole. (See MPEP 2164.05, particularly the last paragraph

stating that the determination of lack of enablement is made based on the weight of the evidence.) Nothing in the Hansen article or the unsupported assertions of the outstanding office action provides evidence to support a conclusion that practice of the method of claim 31 of the present application would require undue experimentation. A considerable amount of experimentation may be required to practice an enabled invention such as that disclosed in the present application where, as here, that experimentation is routine. Applicants respectfully ask that the rejection of the pending claims under 35 USC § 112, first paragraph, for lack of enablement be withdrawn.

Applicants believe the present claims are in condition for allowance and respectfully request a timely notice to that effect be issued. Should additional issues arise that can be effectively dealt with in a timely discussion with Applicant's representative, including Applicant's request that the finality of the outstanding office action be withdrawn, the Examiner is respectfully asked to contact the undersigned so that the case can be quickly issued.

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Respectfully submitted,

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